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~~PATENT CLAIMS~~ I claim.

1. Apparatus (11) for optimizing actual woven fabrics
10 on the basis of measured yarn data,
having at least one measuring device (12) for measuring
the yarn diameter,
having a structure input device (13) for inputting and
changing freely definable structures,
15 having a device (14) for controlling the measuring
device (12) and for evaluation
and a display device (16),
the actual fabric being computed and represented on the
basis of the measured yarn diameters and the freely
20 definable structure
and the fact that the defined structure of the fabric
can be changed making it possible to adapt and optimize
the actual fabric to the measured individual yarn
diameters.
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2. Apparatus according to Claim 1, characterized in
that the measuring device (12) is an optoelectronic
device.

30 3. Apparatus according to Claim 2, characterized in
that the optoelectronic device (12) is a measuring
device carrying out absolute measurements, in
particular a measuring device operating in the infrared
range.
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4. Apparatus according to ~~one of Claims 1 to 3~~ [Claim 1], characterized in that the accuracy of the measuring device (12) is at least 1/100 mm.

5   5. Apparatus according to ~~one of Claims 1 to 4~~ [Claim 1], characterized in that the defined structure is graphically represented.

6. Apparatus according to ~~one of Claims 1 to 5~~ [Claim 1],
10   characterized in that the definition of each structure takes place by means of a two-dimensional matrix.

7. Apparatus according to ~~one of Claims 1 to 6~~ [Claim 1], characterized in that the representation of the
15   computed actual fabric takes place on a screen (16).

8. Apparatus according to Claim 7, characterized in that the representation on the screen (16) takes place by parallel projection of the object by means of a 3D
20   graphics library.

9. Apparatus according to one of Claims 1 to 8, characterized in that the output takes place on a printer (17), in particular a colour printer, or a
25   colour copier.

10. Apparatus according to ~~one of Claims 1 to 9~~ [Claim 1], characterized in that controlling the measuring device (12) takes place by means of the evaluation and control
30   device (14).

11. Apparatus according to ~~one of Claims 1 to 10~~ [Claim 1], characterized in that the apparatus comprises a plurality of measuring heads or measuring devices (12).
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12. Apparatus according to ~~one of Claims 1 to 11~~ [Claim 1], characterized in that the fabric density can be set.

13. Apparatus according to CLAIM 1 ~~one of Claims 1 to 12~~, characterized in that the computation of knitted fabrics additionally takes place in the evaluation device (14) on basis of the measured yarn data.

14. Apparatus according to CLAIM 1 ~~one of Claims 1 to 13~~, characterized in that the apparatus additionally comprises means for carrying out a statistical evaluation of the measured values.

15. Apparatus according to CLAIM 1 ~~one of Claims 1 to 14~~, characterized in that the structure input device (13) is envisaged for altering or creating flat fabric structures.

16. Apparatus according to CLAIM 1 ~~one of the preceding claims~~, characterized in that the structure input (13) and evaluation and control (14) take place in a computer.

17. Method of optimizing actual fabrics on the basis of measured yarn data with an apparatus (11) according to CLAIM 1 ~~one of the preceding claims~~, characterized in that, after measurement of the yarn diameter and definition of the freely definable structures, the actual fabric is computed and represented on the basis of the measured yarn diameters and the defined structure and the fact that the defined structure of the fabric can be changed makes it possible to adapt and optimize the actual fabric to the measured individual yarn diameters.

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